

**To:** Miller, Ken[kenneth.miller@wustl.edu]  
**From:** Avey, Lance  
**Sent:** Thur 12/17/2015 9:17:26 PM  
**Subject:** RE: Hourly SO2 emissions information

Hi Ken,

Your assumptions are correct. We will first see if Ameren is using acfh, and if that is leading to the difference in flow data when compared to CAMD. I will let you know when I receive information, and also verify if EPA will allow a source to use acfh in its modeling if that information is available.

Thanks for your help and bringing this to my attention.

Lance

Lance Avey

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**From:** Miller, Ken [mailto:kenneth.miller@wustl.edu]  
**Sent:** Thursday, December 17, 2015 3:03 PM  
**To:** Avey, Lance <Avey.Lance@epa.gov>  
**Subject:** RE: Hourly SO2 emissions information

Thanks for the update Lance. It's nice to know I can still handle basic math and unit conversions.

I did see that the EMC flow data (which I understand comes from CAMD) is in scfh. My assumption was that that is what EPA wants the states to use to calculate velocities for use in hourly rate modeling for future NAAQS designations because the EMC SO2 data page was set up specifically to provide the necessary hourly data to states that choose to use dispersion modeling to satisfy the requirements of the DRR, and also because neither EPA nor the states have any way to verify velocities if flow in acfh is used in the calculations (not without going through the extra step of contacting the source and asking for additional data, anyway). Perhaps I'm reading too much into it though, and the EMC flow data is in scfh because that's all that sources report to EPA pursuant to 40 CFR 75.10(a)(1).

Regardless, I'm glad to hear you're going to follow up with Ameren. I'd appreciate it if you would let me know what you find out.

Regards,

Ken

Ken Miller, P.G.

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 **Please consider the environment before printing.**

**From:** Avey, Lance [mailto:Avey.Lance@epa.gov]  
**Sent:** Thursday, December 17, 2015 11:24 AM  
**To:** Miller, Ken  
**Subject:** RE: Hourly SO2 emissions information

Hi Ken,

Thanks for passing this along. Kind of what we would expect with the pattern being consistent. I did the calculations and conversions for the exit velocities from the Emissions Clearinghouse. It matches yours, with the conversion from cubic feet to cubic meters, the stack area calculation, and the conversion to m/s.

One thing I am now needing to look at is I believe the CAMB flow data from the Emissions Clearinghouse is in standard cubic feet per hour (scfh as shown in the header in your column S) and not in actual (acfh). You probably understand the difference between scfh and acfh but here a good link:

<https://www.deq.state.ok.us/aqdnew/emissions/SCFMvsACFM.PDF>

So Ameren's modeling may be using acfh. I am going to request the calculation methodology for the exit velocities for the Ameren values and have them include all hourly parameters used to calculate hourly flow rates and hourly velocities and see if they are using acfh to calculate velocities.

Please let me know of any other questions,

Thanks  
Lance

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**From:** Miller, Ken [<mailto:kenneth.miller@wustl.edu>]

**Sent:** Wednesday, December 16, 2015 4:25 PM

**To:** Avey, Lance <[Avey.Lance@epa.gov](mailto:Avey.Lance@epa.gov)>

**Subject:** RE: Hourly SO2 emissions information

Lance,

Just a quick follow-up. You had asked whether the high concentration areas were in roughly the same place when the models were rerun with the EMC-derived velocities, but I hadn't plotted any of the results yet so I didn't know. Attached are side-by-side comparisons for both the DNR and AECOM models, showing modeled design values and violating receptors for the modeling as it was submitted (i.e., with the original velocities) and rerun using the EMC-derived velocities. The patterns are consistent, there are just more violating receptors and hence larger high concentration areas for the models that use the EMC-derived velocities.

Regards,

Ken

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**From:** Avey, Lance [<mailto:Avey.Lance@epa.gov>]  
**Sent:** Wednesday, December 16, 2015 3:01 PM  
**To:** Miller, Ken  
**Subject:** RE: Hourly SO2 emissions information

Thanks Ken,

I downloaded the modeling the model files from the shared folder, nice and easy. I will send off my calculated velocities for comparison sometime tomorrow.

Lance

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**From:** Miller, Ken [<mailto:kenneth.miller@wustl.edu>]

**Sent:** Wednesday, December 16, 2015 2:50 PM

**To:** Avey, Lance <[Avey.Lance@epa.gov](mailto:Avey.Lance@epa.gov)>

**Subject:** RE: Hourly SO2 emissions information

Lance,

Thanks for taking the time to speak with me today. I've uploaded the files for both the AECOM and DNR models with the Emissions Modeling Clearinghouse-derived velocities substituted in the hourly rate files to a shared folder on Box. You should be able to access it via this link:

<https://wustl.box.com/s/tnipd7rq9owxb2j5v98aefcjvigbevie>

If you have any problems accessing the files let me know. I look forward to hearing whether your velocity calculations match mine.

Regards,

Ken

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**From:** Miller, Ken

**Sent:** Wednesday, December 16, 2015 2:05 PM

**To:** Avey, Lance ([Avey.Lance@epa.gov](mailto:Avey.Lance@epa.gov))

**Subject:** RE: Hourly SO2 emissions information

Lance,

It might be helpful for you to have the attached spreadsheet open when we discuss Labadie. Talk to you in a few.

Ken

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**From:** Miller, Ken  
**Sent:** Wednesday, December 16, 2015 9:11 AM  
**To:** Avey, Lance  
**Subject:** RE: Hourly SO2 emissions information

OK, no problem. I'll call you a little after 2 then.

Thanks,

Ken

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**From:** Avey, Lance [<mailto:Avey.Lance@epa.gov>]  
**Sent:** Wednesday, December 16, 2015 9:09 AM  
**To:** Miller, Ken  
**Subject:** RE: Hourly SO2 emissions information

Looks like I will be in and out of meetings this morning. Anytime after 2pm this afternoon works good.

Thanks

Lance

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**From:** Miller, Ken [<mailto:kenneth.miller@wustl.edu>]  
**Sent:** Wednesday, December 16, 2015 9:02 AM  
**To:** Avey, Lance <[Avey.Lance@epa.gov](mailto:Avey.Lance@epa.gov)>  
**Subject:** RE: Hourly SO2 emissions information

Lance,

I'll call you at 11 if that works for you.

Thanks,

Ken

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**From:** Avey, Lance [<mailto:Avey.Lance@epa.gov>]

**Sent:** Wednesday, December 16, 2015 8:05 AM

**To:** Miller, Ken

**Cc:** Hawkins, Andy

**Subject:** RE: Hourly SO2 emissions information

Hi Ken,

Both Andy and I are reviewing modeling for Ameren Labadie. Andy will be in and out of the office with end of year leave, but I am available to chat this week at your convenience.

Thanks

Lance

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**From:** Miller, Ken [<mailto:kenneth.miller@wustl.edu>]

**Sent:** Tuesday, December 15, 2015 4:46 PM

**To:** Avey, Lance <[Avey.Lance@epa.gov](mailto:Avey.Lance@epa.gov)>

**Subject:** RE: Hourly SO2 emissions information

Lance,

Are you reviewing the modeling that was submitted by the Missouri DNR in support of its unclassifiable designation recommendation for Ameren's Labadie plant or is that Andy Hawkins? I wanted to chat briefly with whomever is reviewing the modeling about the issue I raised the other day regarding the hourly stack exit velocities Ameren's consultant used.

Thanks,

Ken

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**From:** Avey, Lance [<mailto:Avey.Lance@epa.gov>]  
**Sent:** Thursday, December 10, 2015 11:44 AM  
**To:** Miller, Ken  
**Cc:** Hawkins, Andy; Jay, Michael  
**Subject:** Hourly SO2 emissions information

Hi Ken,

Below is a link to Hourly SO2 data collected by States using CEMS for the 2012-2014 period:

<http://www3.epa.gov/ttn/chief/emch/so2naaqs/index.html>

You can see that the exit flow rates are available, but note that stack temperature data is not required to be submitted, and thus is not in CAMD. However, if you possess the modeling inputs for Ameren's AERMOD modeling, you would be able to find information (both stack temps and exit velocities) in there.

Let me know of any further questions,

Thanks

Lance

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